

Appl. No. 10/708,331
Amdt. dated May 17, 2006
Reply to Office action of February 17, 2006

REMARKS/ARGUMENTS

1. Claims 1-3, 6, 7, 13, 16, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by JP 08136918 to Kobayashi et al.

5 Response:

Claim 1 has been amended to overcome the above rejection. Specifically, claim 1 now includes an additional limitation regarding the **heat pipe overlapping the diffuser in a direction as the light beams entering the display panel from the light source generator**. No new matter is introduced. The above limitation is included in order to 10 further define the structural considerations given to the claimed invention.

Kobayashi disclosed a back light unit of liquid crystal display equipment. The back light is equipped with a lamp 5 which consists of a cold cathode tube installed to the flank of a reflecting plate 1, a light guide plate 2, a diffusion plate 3 piled up in order. 15 The back light unit also comprises a heat pipe 6 installed in the condition that heat transfer is mutually carried out to the lamp 5 concerned along with the lamp 5. The heat pipe 6 is grasped with the lamp 5 by a holder 7 in shape of about U characters.

It is noteworthy that there are three differences between the present application and 20 Kobayashi:

(1) The light source generator of the present application is positioned in the *backside of the display panel* while the lamp 5 of Kobayashi is installed to the flank of the reflecting plate 1, the light guide plate 2, and the diffusion plate 3, which means the lamp 5 is positioned at the *flank of the display panel* 4.

25 (2) The diffuser of the present application is positioned *between the light source generator and the display panel* while the diffusion plate 3 of Kobayashi is positioned between the light guide plate 2 and the display panel 4, not between the display panel 4 and the source generator, lamp 5.

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(3) The heat pipe of the present application is overlapping the diffuser in a direction as the light beams entering the display panel from the light source generator while the heat pipe 6 grasped by the holder 7 of Kobayashi never overlapped with the diffusion plate 3.

5 Therefore the applicants assert that the amended claim 1 is patentably different from Kobayashi. Reconsideration of the amended claim 1 is respectfully requested.

Claims 2-3 and 6 are dependent on the amended claim 1 and should be allowed if the amended claim 1 is allowed. Reconsideration of claims 2-3 and 6 is politely requested.

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Claim 7 recites that the heat pipe is positioned at a contact point of the diffuser and an upside of the housing for avoiding affecting paths of the light beams. According to Fig. 1, the heat pipe 6 of Kobayashi is positioned within the holder 7, not at the contact point of the diffusion plate 3 and the holder 7, otherwise it obstructs paths of the light beams.

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Therefore the applicants assert that claim 7 is distinctly different from Kobayashi. Reconsideration of claim 7 is politely requested.

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Claim 13 has been amended to overcome the above rejection. Specifically, claim 13 now includes an additional limitation regarding the **heat pipe overlapping the diffuser in a direction as light beams generated from the light source generator entering the display panel**. No new matter is introduced. The above limitation is included in order to further define the structural considerations given to the claimed invention.

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As mentioned above, claim 13 is different from Kobayashi in three points: (1) The light source generator of the present application is positioned in the backside of the display panel while the lamp 5 of Kobayashi is installed to the flank of the display panel 4; (2) The diffuser of the present application is positioned between the light source generator and the display panel while the diffusion plate 3 of Kobayashi is not positioned between

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the lamp 5 and the display panel 4 at all; (3) The heat pipe of the present application is overlapping the diffuser in a direction as light beams generated from the light source entering the display panel while the heat pipe 6 of Kobayashi grasped by the holder 7 is never overlapped with the diffusion plate 3.

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Therefore the applicants assert that the amended claim 13 is patentably different from Kobayashi. Reconsideration of the amended claim 13 is respectfully requested.

10 Claim 16 is dependent on the amended claim 13 and should be allowed if the amended claim 13 is allowed. Reconsideration of claim 16 is politely requested.

15 Claim 17 recites that the heat pipe is positioned at a contact point of the diffuser and an upside of the housing. However, the heat pipe 6 of Kobayashi is positioned within the holder 7, not at the contact point of the diffusion plate 3 and the holder 7, otherwise it obstructs paths of the light beams. Therefore the applicants assert that claim 17 is distinctly different from Kobayashi. Reconsideration of claim 17 is politely requested.

2. *Claims 4, 5, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08136918 to Kobayashi in view of USPN 6, 515,857 to Ford et al.*

20 **Response:**

From the above discussion, Kobayashi's application is different from the present application. Therefore, the combination of the applications of Kobayashi and Ford et al., disclosing the details of the heat pipe, still does not teach all the limitations of the amended claims 1 and 13 of the present application. Therefore, applicants assert that the 25 amended claims 1 and 13 are allowable with regarding the combination of the applications of Kobayashi and Ford et al. Claims 4 and 5 are dependent on the amended claim 1 and should be allowed if the amended claim 1 is allowed. Claims 14 and 15 are dependent on the amended claim 13 and should be allowed if the amended claim 13 is

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allowed. Reconsideration of claims 4-5, and 14-15 is politely requested.

3. *Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08136918 to Kobayashi in view of US 1003/00503007 to Higashi.*

5 **Response:**

Claim 8 is dependent on the amended claim 1 and should be allowed if the amended claim 1 is allowed. Reconsideration of claim 8 is politely requested.

4. *Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08136918 to Kobayashi in view of US 2004/0239829 to Yu et al.*

10 **Response:**

Claim 12 is dependent on the amended claim 1 and should be allowed if the amended claim 1 is allowed. Reconsideration of claim 12 is politely requested.

15 5. *Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08136918 to Kobayashi.*

20 **Response:**

Claim 19 has been amended to overcome the above rejection. Specifically, claim 19 now includes an additional limitation regarding the heat pipe overlapping the diffuser in a direction as light beams generated from the light source generator entering the display panel. No new matter is introduced. The above limitation is included in order to further define the structural considerations given to the claimed invention.

25 As mentioned above, claim 19 is different from Kobayashi in three points: (1) The light source generator of the present application is positioned in the backside of the display panel while the lamp 5 of Kobayashi is installed at flank of the display panel 4; (2) The diffuser of the present application is positioned between the light source generator and the display panel while the diffusion plate 3 of Kobayashi is positioned between the

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light guide plate 2 and the display panel 4 but not between the lamp 5 and the diffusion plate 3; (3) The heat pipe of the present application is overlapping the diffuser in a direction as light beams generated from the light source entering the display panel while the heat pipe 6 grasped by the holder 7 of Kobayashi never overlapped with the diffusion plate 3 in the above-mentioned direction.

5 Therefore, Kobayashi does not disclosed all the limitations in claim 19, thus the applicants assert that even one of ordinary skill in the art at the time of invention have provided Kobayashi with a heat pipe with rough surface, it is still patentably different from claim 19. Reconsideration of the amended claim 19 is respectfully requested.

10 6. *Claim 9, 10 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over KP 08136918 to Kobayashi in view of US 2003/00503007 to Higashi and in further view Kobayashi.*

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Response:

20 Claims 9 and 18 are respectively dependent on the amended claims 1 and 13 and should be allowed if the amended claims 1 and 13 are allowed. Claim 10 is dependent on the claim 9 and should be allowed if the amended claim 9 is allowed. Reconsideration of claims 9-10, and 18 is hereby requested.

7. *Claims 11 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 80136918 to Kobayashi in view of USPN 4,729,076 to Masami et al.*

25 **Response:**

Claims 11 and 20 recites that a contact surface of the heat pipe and the external environment is a rough surface, the rough surface comprising a plurality of sharp teeth so that a radiating area is increased.

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5 Please note that the heat pipe 6 of Kobayashi is grasped by the holder 7, *the heat pipe 6 actually has no contact surface with the external environment*. Therefore the one of ordinary skilled in the art would not be able to provide the heat pipe taught by Kobayashi with rough surface taught by Masami. The applicants assert that claims 11 and 20 are patentably different from Kobayashi in view of Masami. Reconsideration of claims 11 and 20 are politely requested.

8. *New claim*

10 New claim 21 is presented and is an independent claim. No new matter is entered by these claims. Kobayashi's back light unit differs from the present new claims in: (1) the lamp 5 of Kobayashi is installed to the flank of the reflecting plate 1, the light guide plate 2, and the diffusion plate 3 while the light source generator of the present application is positioned in the backside of the display panel; (2) the diffusion plate 3 of Kobayashi is 15 positioned between the light guide plate 2 and the display panel 4 while the diffuser of the present application is positioned between the light source generator and the display panel; (3) **the heat pipe 6 of Kobayashi directly contacts the lamp 5 for transferring heat in a conductive manner while the heat pipe of the present invention not contacting the light source generator at all, which means that the heat generated from the light source** generator of the present application is transferred to the heat pipe through air, in an 20 irradiation manner, then to the external environment through the heat pipe itself. Consideration of new claim 21 is politely requested.

25 Applicants respectfully request that a timely Notice of Allowance be issued in this case.

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Sincerely yours,

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10 Note: Please leave a message in my voice mail if you need to talk to me. (The time in D.C. is 12 hours behind the Taiwan time, i.e. 9 AM in D.C. ≈ 9 PM in Taiwan.)